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At a meeting of the Board of Directors of the St. Lawrence and Atlantic Railroad Company, held at the Office, in the city of Montreal, on Wednesday, the 24th March, 1852, at which were present—

THE PRESIDENT (Mr. A. T. GALT),
THE VICE-PRESIDENT (Mr. Wm. Molson),
THE MAYOR,
MR. MOFFATT,
MR. MCGILL,
MR. TORRANCE,
MR. A. LAROCQUE,
MR. DOW.

It was unanimously resolved:—

That whereas the Board having had again under their review, their Resolution of 27th February last, communicated to Alexander Kilborn, Esq., by the Secretary's letter to him of the same date, by which the Company engaged to defray the expenses of such reliable survey of the Stanstead route proposed for the railway between Lennoxville and Stanstead Plain, as might be instituted by the persons advocating that route, in preference to the line of the Coaticooke—provided the necessary gradients should be found within 45 feet per mile, and the total mileage between Lennoxville and Island Pond should be extended no more than three miles over the distance by the Coaticooke—and provided that the return of such survey were made on or before the 21st March instant;

And the Board having communicated, on the 22nd & 23rd instant, and on this day, with Messrs. Wilder Pierce, Portus Baxter, Alexander Kilborn & H. B. Terrill, representing the interests engaged in the support of the Stanstead route, as well as with W. B. Gilbert, Esq., Civil Engineer, recently professionally employed in its examination; and having received from these gentlemen, all the information offered by them in reference to the facilities which they conceive to be connected with the adoption of the Stanstead Line;

The Board having also before them, the Petition of certain of the Shareholders of the Company, praying that the location of the Railway in the County of Stanstead, be delayed until after a careful examination of the several routes by a committee of the Stockholders of Montreal; and having

carefully considered and fully discussed the subject—as well with reference to the relative merits of all the lines which have been suggested, as with regard to the financial condition and arrangements of the Company, and its expressed engagements and undertakings :—

The interests of the Company do not permit such a delay in their proceedings in completing the construction of the Railway, as is applied for by the advocates of the Stanstead route, to enable them by more accurate surveys, to endeavour to show that route to be preferable to that on which the location of the Railway has been made.

AND,

It was unanimously resolved :—

That the following memorandum, comprehending the views of the Board in declining the application of certain Shareholders residing at Stanstead, for an extension of the delay already afforded them, for the purpose of making surveys of a line for the Railway to pass through or near Stanstead Plain, be printed and circulated for the information of the Proprietary of the Company.

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MEMORANDUM.

In proceeding to the consideration of the application made by certain Stockholders in the Company, for the time to make further examinations and surveys with the view of establishing the point of Junction with the Portland Company, at the Village of Stanstead, it becomes necessary to advert to the whole subject of the negotiations and agreements had between the two Companies, in reference to the connection to be effected between them.

By the original agreement under date 17th April, 1846, it was stipulated that the point of Junction should be settled by two Committees of the respective Boards and Directors, by whom all necessary surveys should be made, and the point established, subject to the ratification of the two Boards.

Under this agreement, five lines between Lennoxville and the Connecticut River (being two points common to all possible routes), were either accurately surveyed and located, or so far examined as to satisfy the Committees of the leading features of each.

The most Easterly route by Salmon River and Hall's Stream, leading to the head waters of the Connecticut River, was accurately surveyed on the American side, and was levelled and examined on the Canadian side, showing the following results:—Length 59 Miles; 1353 extreme Summit; Maximum Grade 45 Feet

The route next adjoining the above to the West, is that by Moe's River and Leache's Stream. This line was also surveyed and located on the American side, it was also examined with equal care on the Canadian side, and showed the following results:—Length 51.6 Miles; 1547 extreme Summit; Maximum Grade 60 feet,

The third route was that by the Eastern Coaticooke and East Nulhegan, which was surveyed and located by the American Company, and was also accurately surveyed by the Canadian Company, with the following results:—Length 47.4 Miles; 1802 extreme Summit; Maximum Grade 60 feet.

The fourth route was that by the Western Coaticooke to Island Pond, which has been surveyed and definitely located by both Companies, with the following results:—Length 58.9 Miles; 1355 extreme Summit; Maximum Grade 45 Feet.

The fifth and last was that by the Massawippi, to Stanstead, and thence by the Clyde also to Island Pond. On the American side this line was located to Island Pond, surveyed to the intersection of the Passumpsic River Railroad survey by the Clyde River, and thence by the Passumpsic survey to Stanstead, from whence a survey and approximate location were made to Lennoxville. The results were:—Length 66.5 Miles; 1165 extreme Summit; Maximum Grade 60 Feet.

THE FOLLOWING TABLE WILL SHOW THE COMPARISON AFFORDED BY THESE SEVERAL LINES.

Route.	Length.	Extreme Summit.	Maximum Grade Per Mile.
Salmon River & Hall's Stream.....	59.2 Miles.	1353	45 Feet.
Moe's River & Leache's Stream.....	51.6 do.	1547	60 do.
Eastern Coaticooke & East Nulhegan....	47.4 do.	1802	60 do.
Western Coaticooke & Island Pond.....	58.9 do.	1355	45 do.
By Massawippi to Stanstead & Island Pond.....	66.5 do.	1165	60 do.

With the information afforded by the preceding examinations, the two Committees met at Portland, on the 4th of August last.

On proceeding to the discussion of the point of Junction, it was evident that there was considerable danger of the interests of the two Corporations, so far clashing as to make a perfect agreement on all points, an exceedingly difficult affair, which will appear from a review of what appeared to be the respective particular interests of each Corporation.

The Portland Company represented that of the five routes submitted, those by Hall's Stream and Leache's Stream, (the first and second) were the most desirable, because, in either case, the amount of Railroad to be built by them would not exceed between 20 and 21 miles; because these lines in the United States passed through a cultivated and well peopled Country up the Valley of the Connecticut; because they could work these lines with much less cost, as their gradients would not exceed 25 feet per mile; because if the gradients by the Leach Stream were objectionable, still those by Hall's Stream were as favorable as on any other route.

The objections made on the part of the Canadian Company, to those two lines, were, that the expense of construction was greater than on other routes, that the summits fell altogether within the Province, and consequently would expose them to much increased cost in working, and that although in the one case, the gradients were equal to the line they preferred, yet, it was really more objectionable, as well on the above grounds, as because it debarred them from forming a favorable connection with the Passumpsic road leading to Boston.

The third route, although very considerably shorter than either the Hall's Stream, or Western Coaticooke, was considered by both Committees inadmissible from the objectionable gradients.

The Canadian Company then proposed the consideration of the Western Coaticooke, as being somewhat shorter than the Hall's Stream, as having equal gradients, as distributing the summit equally between the two Companies, being cheap in construction, and as being more advantageous to them from the probability it afforded of an easy and speedy connection with the Railroad to Boston, in operation to St. Johnsbury, distant from Island Pond only thirty miles.

The consideration of the Stanstead route was also taken up at the same time, and full consideration given to its claims, which consisted in the fact of its passing through a fertile and well settled country, to within a short distance of Island Pond, and to its affording an equally advantageous connection with Boston. Excepting a slight increase in distance, it was conceived quite possible that the gradients might be reduced on this line to the Maximum

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Grade on the other route, but it was also certified by the Engineers of both Companies, that this could not be done without an increase of distance, which already exceeded that by the Western Coaticooke, 7 Miles, and by Hall's Stream, 7 Miles.

The Portland Company objected both to the Western Coaticooke, and the Stanstead routes, on the following grounds:—That in either case they had to abandon the cultivated and level Valley of the Connecticut, to pass through a considerable extent of forest: that, in one case, an excess of distance of 12 Miles, in the other of 17 Miles, would be entirely thrown on them: that their financial arrangements, and the mortgages granted on their road, limited the distance they could possibly construct to 21 Miles, and that although a connection with Boston might be desirable for the Canadian Corporation, their interest they feared would be materially injured thereby. That these objections applied with equal force to either route, but especially to that by Stanstead, which would increase the distance between Montreal and Portland, at the same time that it gave the most favorable opening for the Passumpsic (Boston) road to tap their trade. Their conclusion was that they could assent to neither route, without the Canadian Corporation undertook the construction of the excess of distance above that for which their financial arrangements were made, and that if such arrangements were entered into, they gave their decided preference to the Western Coaticooke, as being undoubtedly considerably shorter, and possessing the most favorable gradients.

The proposition thus made on the part of the Portland Company, had been foreseen by the Canadian Committee, and, joined to other reasons, rendered it extremely difficult to arrive at the desired result. Independent of the reasons, it was proper for them to urge upon the Portland Company, in support of their position, there were other causes materially affecting the future prosperity of the Company, which justly demanded their attention, and which, as affecting both the Stanstead and Western Coaticooke routes, may be here stated.

The Committee had in view that since the commencement of the St. Lawrence and Atlantic Railroad, in 1846, very great progress had been made in the extension of lines leading from Boston to the St. Lawrence, and Lake Ontario, and especially, that the construction of the Ogdensburgh Railroad to Rouse's Point, might hereafter cause the construction of a line from thence by the Missisquoi Valley, to connect with the Portland road, they could not shut their eyes to the fact, that in adopting the Western Coaticooke route, they were actually bringing the Portland road about 17 Miles nearer to Rouse's Point, and that if they took the Stanstead route they would extend the Portland road about 15 Miles further, in the same direction, while they would, at the same time, be increasing their own line no less than 7½ Miles. It was evident to them, that looking at the distance from Rouse's Point to the Connecticut river, it was a dangerous policy to move Westward at all, but increasingly so, for every mile of Westing they made.

The proposition of the Portland Company that the Funds for a large section of their road should be provided by the Canadian Company if either of the Island Pond routes should be selected, increased the difficulty, first, from the impediments in the way of carrying out such an agreement legally; secondly, in raising such a large additional sum of money, where all their existing resources were required to reach the Boundary Line; and lastly, from the fact that in encountering all these obstacles, the Canadian Company would actually be paving the way for the construction of another road, that might prove a formidable rival. If either of the Eastern routes were adopt-

ed, the Portland Company would be satisfied. The finances of both Companies relieved, as half the cost of the increased distance in Canada would be borne by the Government; and the probabilities were, that any Railroad from Rouse's Point, instead of seeking the Portland road, would connect by way of the Barton River with the Passumpsic Railroad, and thus remove all apprehension of future rivalry.

These reasons were in the case of the Western Coaticooke, met by the following considerations: that the Railroad in Canada passed through a well settled and fertile country, capable of very great developement. That it was in point of gradients decidedly the best, and could be worked cheapest. That in the United States, the portion required to be constructed by this Company—although now unsettled, was not remote from existing settlements—was very cheap in construction, and could be worked with great economy.

That it afforded the reasonable prospect at Island Pond of a connection with the Passumpsic road and the great American manufacturing Districts—that although the construction of any portion of the American road was objectionable—yet it was highly desirable—that the company should have the control of their business up to the point of intersection of the Passumpsic road, and that this advantage would more than counterbalance the temporary inconvenience of procuring a large sum of money, and of passing through an unsettled country for 16 or 18 Miles. That the adoption of this route made the Canadian Railroad from Richmond to Island Pond, a Trunk Line, as nearly as possible, straight for no less than 70 miles, for all the business of Lower Canada between Montreal on the one side, and Quebec on the other, falling on the Railroad from Montreal to Richmond, and from Quebec to Richmond not merely to Portland but to Boston and New York—an object attained through the proposed line being the shortest possible route from Richmond to any point common to these three cities—and requiring no more to perfect the communications, than the construction of 30 Miles of Railroad from Island Pond to St. Johnsbury.

The Committee had further to consider—That the adoption of the Eastern routes desired by the Portland Company would deprive them of all the advantages of a Southern connection, unless they were prepared to construct an independent line from a point near Lennoxville to the boundary line, at or near Stanstead—a distance of about 30 miles—and unless the Passumpsic Road extended their line from St. Johnsbury to the same point, a distance of about 50 Miles. It was, therefore, apparent to them, that the Island Pond route, by the Western Coaticooke—even adding the 16 Miles demanded by the Portland Company—required only the construction, from near Lennoxville, of 42 miles of Railroad at their expense, and gave them all the desired Southern connections, while by the Eastern, or Halls Stream route, they would have, in the Portland road, 38 Miles to build; and to connect with the Passumpsic Road at Stanstead, 30 Miles; making together 68 miles, as against 42 on the Western Coaticooke.

Referring to the Stanstead route, the Committee found that while it would afford the same connections with the South, it was exposed to the following serious objections, even granting that in point of gradients, it could be made equal:—First, it increased the distance, according to the Reports of the Engineers, no less than 7½ Miles. Secondly, it advanced the Portland Road toward the West, 15 Miles beyond Island Pond towards Rouses Point. And lastly, it would cause the Company to raise nearly one half more money than required on the Western Coaticooke, to complete the line on the terms stated by the Portland Company. On the other hand, the Committee recognized the fact that, it would possess a considerably larger Way Business than the

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other route, and would for the present, at least, accommodate a larger population. This remark applying exclusively to the line in the United States, proposed to be executed at the cost of this Company, as in Canada the relative amount of population and Way Business would not very greatly differ, although somewhat in favor of the Stanstead route at present.

On the subject of the existing and future Way Business of the two routes under consideration, the Committee could not but consider that this element in the decision of the question, was liable to great fluctuations, that the resources of the whole country were, to a very great extent, undeveloped, and that the construction of the Railroad itself would almost, without a doubt, speedily give a preponderance of Way Business to the line they might adopt. On looking therefore to the whole question they considered that by the adoption of the Stanstead route, they would effect a permanent and incurable injury to the Railroad Company, by the extension of the line upwards of 7½ Miles, against which they could only set off what they regarded as the temporary advantage of some additional Way Business on the section of their road, proposed to be constructed in Vermont, an advantage also, which was lessened from the consideration, that the Way Business in question would not benefit the remainder of the Railroad by passing into the Province and thence over the entire line to Montreal, but would be confined to the use of the section communicating with the Portland and Boston Roads.—After the most mature deliberation and with every desire to give due weight to all arguments for or against either route, the Committee concluded in favor of the Western Coaticooke route, and intimated to the Portland Company their readiness to undertake the construction of the excess of distance by this line above that by the Connecticut Valley.

In conformity with this decision, the Committees of the two Companies executed an agreement, on the 4th of August last, embodying the terms upon which the point of Junction had been settled, and defining the route as that by the Western Coaticooke. This agreement was duly ratified by the Portland Company, and also the Canadian Company, on the 11th September last.

In accordance with the above agreement, the Portland Company have proceeded with the execution of the work on their division of the road, and the St. Lawrence & Atlantic Railroad Company have also definitively located their line, have caused a quantity of the superstructure to be delivered upon it, and have advertised for Tenders, which were received on the 15th Instant, and which are now only awaiting the decision of the Board to be immediately proceeded with.

In this position of affairs the application for a further examination of the Stanstead route has been made, and certain evidence has been laid before the Board to satisfy them that the Committees of the two Companies had arrived at an erroneous conclusion, and that operations should be suspended until further alleged facts could be adduced.

With reference to the evidence already laid before the Board, it is important to observe how far it tends to remove the objections stated against the Stanstead route. These were mainly two—First, the increase of distance. Secondly, the Western direction of the road. As regards the latter point, no evidence of any kind has been brought forward to show that the Committee erred in supposing that the Stanstead route, would bring the Portland route to a point 15 Miles nearer in connection with Rouse's Point nor does it appear possible to the Board to overcome this objection in any way.

It now remains to consider whether the views of the Committee were incorrect, in judging that in order to assimilate the Grades to those on the Western Coaticooke, an increase of distance would inevitably result, and

whether they were fully justified in the conclusion that all requisite examinations and surveys had been made for the proper understanding of the whole question, and that no Line could by possibility be shown which should meet the required Grade, and not increase the distance.

The Report of the Chief Engineer of the Company in the evidence submitted, is produced herewith, whereby it appears that by the surveys made previously, and in possession of the Committee, the distance within the Province on the Western Coaticooke line was 26 miles; and on the Stanstead line, from the common point of departure, with 60 feet gradients 28½ Miles.

Putting aside the largely increased work, it now appears by this report, that to assimilate the gradients on each line, in the manner and on the line pointed out to the Board, an increase of distance would be required above that already stated, of probably 2½ Miles, according to the data submitted by the advocates of the Stanstead route; the result thus far fully confirming the Report of the Engineers to the several Committees, and the justice of their conclusion thereon.

It may be proper here to remark, that the total assumed excess of distance by the Stanstead route above the Coaticooke route, was stated by the Engineers to the two Committees, as 7 Miles, of which the difference in the Province was 2½ Miles, and in the United States 4½. It now appears that assimilating the grades, and increasing the cost of the work, the difference in the Province, so far from being diminished, would be actually increased from 2½ Miles to about 5. While the greater altitude of the Summit, by the Western Coaticooke, appears also by the Report of the Engineer, to be more than compensated by the greater regularity of the ascent, thereby reducing the total rise and fall to a less amount than on the Stanstead route; and virtually making the Summit lower than the latter, so far as the economical working of the road is concerned.

With reference to the probable route through the United States, from Stanstead to Island Pond, no reliable evidence has been adduced to show that an erroneous view was taken of the distance; but it has been stated by Mr. Gilbert, an Engineer of standing, that he is of opinion that a diminution of upwards of a mile might be made, by leaving the Village of Derby centre, about 1½ Mile to the Westward, and that possibly some further reduction might take place beyond that point.

Not having any facts before them in support of this view, the board cannot accept this statement in correction of the reports already laid before them; but even assuming the correctness of this position, it is evident to them that the reduction in distance here claimed, would not equal the positive ascertained increase within the Province, and that they would in any case have to encounter an aggregate excess of distance fully equal to that assumed by the two Committees.

As the application is, however, not for a change of route absolutely, but for an extension of time only, to complete further surveys, the Board have to consider first, whether any reasonable hope exists, that any important modification of existing evidence can be had; and secondly, whether the position of the Company is such as to warrant any further delay. On these points, the Board are of opinion, that no case has been made out, to induce the belief of a favorable result; and although their own wish would be to afford the delay, if unattended with serious loss, yet it is impossible for them to grant it in the face of an absolute agreement with the Portland Company, on which that Company are acting—and in view of the inevitable serious delay that must arise in the completion of the road, if they were to attempt to

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open up the question of Junction, involving a discussion of the claims of all the other routes whose friends might assert their merits.

The injury to this Company by delay in proceeding with the contracts now ready for decision, cannot be regarded as confined to the time applied for to procure further surveys, and, even if the Directors were prepared to admit, which appears quite unwarranted, that the alleged facts in support of the Stanstead route were wholly borne out, they cannot conceal from themselves the injury that would inevitably result from the procrastination.—Detailed surveys would be required extending over 50 Miles, which could not possibly be completed so as to permit the commencement of the work in less than three months, and, supposing these surveys to prove in every respect favorable, much additional time would inevitably be required in their examination and approval by the Provincial Government, in the new arrangement with the Portland Company, in obtaining the assent of the Passumpsic road to the occupation of that part of their line in Vermont, from Stanstead to the Clyde river, about ten Miles, and in other steps incident to such an entire change in the Company's plans.

The discussion of the details arising out of the agreement with the Portland Company have only lately been brought to a conclusion. Application has been made to the Government for their assent to the grant of the required powers to carry out this agreement, which has only now been received. Negotiations for raising the required money, on the specified security of the Western Coaticooke, have also been opened in London, with every prospect of success, and the Directors cannot but feel that should any unfortunate outbreak in Europe take place, which seems not improbable, their ability to raise the Funds might entirely vanish, and the Company be actually left without the means of completing the road, either by one route or the other.

The Directors conceive that by the vigorous prosecution of the Western Coaticooke line in the position that affairs now stand, they have every assurance of completing the Road to Portland early in the business season of 1853. While the delay which, in their judgment, must inevitably arise from the adoption of any other line, might possibly, by a change of affairs in Europe, produce an entire suspension of the work, and postpone for an indefinite period the completion of the line.

The Board are therefore satisfied that the interruption of their present plans might involve the Company in the most serious permanent embarrassment, and possibly in a long postponement of the road, while it would certainly result, under the most favorable circumstances, in a postponement of the completion of the Railroad for a period of four months, deferring it thereby to the close of the business season of 1853, which in effect would, to the commercial community, be equivalent to the loss of an entire year.

The Board cannot take the responsibility of incurring a risk, fraught with so much peril to the Company, especially with the facts before them in relation to the two routes, and they therefore decline acquiescing in the delay of their proceedings, and adhere to the route adopted in conjunction with the Portland Company and ratified 11th September last.

REPORT OF THE CHIEF ENGINEER.

ENGINEER'S OFFICE,
St. Lawrence and Atlantic Railway,
Montreal, 23rd March, 1852.

SIR,—Complying with instructions from the Board of Directors, I have the honor to submit the following Report on the survey and statements submitted by the Deputation from Stanstead, for a line of Railway from near Lennoxville to the Province Line, and from thence to Island Pond, with a request that the present location of the route by the Valley of the Western Coaticooke should be re-considered, and asserting, that the line recommended by them, will be as favorable in point of gradients, and as easily constructed, as that already located.

Before entering into the details, I beg to state that, the adoption of a line passing through Stanstead, has received my careful attention; and that having been put in possession of such reliable information as was necessary to arrive at correct conclusions, I consider the route objectionable, and inferior to that now located, on account of gradients and increase of distance; and on those grounds I did not recommend any further expenditure of means and time, which would have only added to the already ample data for condemning it.

From the point of divergence common to both lines, the distance by the Stanstead route to the Province Line, as surveyed by Mr. Vining, under Mr. Morton, is $2\frac{1}{2}$ Miles greater than that by the line of the Valley in the Western Coaticooke, from the same point.

From the Province Line to Island Pond, the distance by the route as surveyed by Mr. Westbrooke, under Mr. Morton, and by the survey of the Passumpsic Railway Company, is 5 Miles longer than that by the line following the Valley of the Coaticooke and Phering Rivers; thus making the total increase of distance on the Stanstead route, over that by the Western Coaticooke, $7\frac{1}{2}$ Miles.

The Maximum Gradient, by the Stanstead route, is 60 feet to the Mile for a distance of 11 Miles 1860 feet. The Maximum Grade by the Western Coaticooke Route, is 45 feet to the Mile, for a distance of 11 Miles 2520 feet.

The estimated cost of constructing the Stanstead route, even with 60 feet grades, exceeds that of the Western Coaticooke route.

The Maximum Gradients on the portion of the line located between the Province line and Island Pond, by the Western Coaticooke, is 45 feet per Mile, for a distance of 2 Miles and 40 feet.

The Maximum Gradient of the line from Stanstead to the same point, is not given; but a statement is made, that it will be a continuous rise for the entire distance of about 20 Miles, with light gradients.

These are the facts connected with the two routes referred to, the positive results have been arrived at by accurate surveys.

A Profile of a Survey made over an extent of country of 14 Miles, and 2080 feet at a point of the line, which, according to Mr. Vining's Survey is the most objectionable on account of grades and heavy work, has been laid before the Board of Directors for the purpose of showing that Mr. Vining's line can be improved and grades, not exceeding 45 feet per mile, obtained.

Before entering into the particular merits of the proposed route, I beg to remark that there has never been a doubt in my mind, but that a line with

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grades, not exceeding 45 feet to the mile, could be obtained with a considerable increase of distance, to admit of the necessary distribution of grade, the formation of the Country over which the line must pass being of such a nature as to leave to the Engineer no other recourse than either to go round the hill or cut thro' it, in the one instance, judging from the data, increasing the distance not much short of 2½ Miles, and in the other, admitting the gradients of 60 feet per mile, and encountering very costly earthwork. The Profile submitted by the Deputation, contains on its face the evidence of the facts here stated.

Both parties appear to have started at the Province Line from the same point, Mr. Sill by increasing the cuttings for the purpose of obtaining a lower level, reaches Davis Summit with an elevation of 16 feet less than that by Mr. Vining's Survey, the distance to this point, on both routes, being about the same; but the work on the proposed line is very considerably increased. From this point, Mr. Sill appears to have left Mr. Vining's line, and proceeds on a new ground to reach the most objectionable points on the route, viz., Lifford's Gulf, Negro River, and a Gulf at Hatley Creek.

The Profile of that portion of the survey shows grades not exceeding 45 feet to the mile; but this is obtained by increasing the distance ½ths of a mile and making the work so difficult and expensive that another reconnaissance was considered necessary by Mr. Gilbert, the Engineer employed by the Deputation, for the purpose of finding a line by which the extent of work shown on the Profile should be reduced.

A Profile of this portion of the improved route was also submitted. On examining this Profile, the point of deviation from the main line is easily established; but in its descent the line last run is not made to connect with the main line but stops 40 feet above it; showing most conclusively that no other means exist of overcoming the difficulty than by distributing the grades over a greater distance, or encountering enormously expensive work.

The line surveyed by Mr. Sill, fraught with all the difficulties of very expensive earth work, reaches the Hatley Gulf with an elevation of 11 feet above that of Mr. Vining, carrying, in my opinion, still farther evidence of the necessity of increasing the distance for the purpose of reducing the grades. At this point Mr. Sill's survey ends, while on the remaining portion of Mr. Vining's survey, there are still to be overcome 27,600 feet of grades exceeding 45 feet per mile.

From the character of the survey submitted, which bears on its face sufficient evidence that, to overcome the height, recourse is had to increase of distance.

I do not hesitate in assuming a data on which to base my calculation as to the total increase of distance that will be necessary to decide on a practicable route, with grades not exceeding 45 feet to the Mile.

In the first place, the distance between the Province Line and Hatley Gulf is already increased by 3,300 feet, as appears in the Profile submitted; add to this a distance required to overcome the additional 40 feet of height which is made, in attempting to avoid the heavy work at Lifford's Gulf, equal to 4,693 feet of 45 feet grade; and add to this a distance necessary to overcome the 11 feet being the difference of height between Mr. Sill's and Mr. Vining's survey, which is equal to 1,070 feet of the same grade. It would make the total increase of distance to overcome the grades on the first 14 Miles from the Province, 9063 feet. In making this calculation, however, the data are too imperfect for a positive statement of distance, but a considerable increase must certainly be made, and very heavy additional work encountered.

Following out the same principle in the location from Hatley Gulf to the point near the waters of Lake Massawippi, where the heavy grades on Mr. Vining's survey terminate, an additional increase of distance of at least 4,300 feet, must be encountered; assuming the proportionate increase when similar grades are avoided, to be the same as on the line submitted by the Deputation. Thus making the total increased distance to the Province Line 13,363 feet, or 2 Miles 2,863 feet. This added to the 2½ Miles, being the difference between the original line surveyed by Mr. Vining, and the Western Coaticooke route, would make the increase of distance on that portion of the road within the Province Line, 5 miles 163 feet.

With reference to the distance of the route proposed by the Deputation from the Province Line to Island Pond, no reliable information has been furnished; it was admitted, however, by Mr. Gilbert, that it would be about 20 Miles.

Assuming this statement as correct the result will show a difference against the Stanstead and Clyde routes of 4½ Miles. Thus making a total difference in distance between the two routes of 9 Miles and 1483 feet, so far as any calculation can be made from the data furnished.

As much has been said with reference to gradients, and their effect on the future working and success of the road, I wish to institute a comparison of those on the routes under discussion. The result of the location from the point of divergence near Lennoxville to Island Pond, by the Western Coaticooke, shows the total length of 45 feet grades to be 13½ Miles.

On the route recommended by the Deputation, the length of 45 feet grade within the Province alone, (assuming their own Profile as far as shown, and taking for granted that they should succeed in reducing all the grades between the point at which the survey terminates, and the point of divergence to 45 feet) would be 17 Miles, 2240 feet, showing a difference in the extent of 45 feet grades of 4 Miles over the Western Coaticooke route.

On the portion of the route from the Province Line to Island Pond, supported by the Deputation, no reference is made to gradients, but much stress is laid on the fact that on the located line a summit is overcome of 191 feet; had the facts been laid before the Board as to the nature and extent of the continuous rise that is said to exist between Stanstead and Island Pond, following the Clyde River, a comparison as to value of gradients on each route could have been instituted, but as there are no data furnished for that purpose, it will be sufficient to state that in overcoming a summit the proper distribution of grades is the main object to be attained. The relative value of grades on a line of road does not depend wholly on their declivity; the length and proper distribution are points which must be embraced in the calculation to arrive at a correct and satisfactory result, and I could not venture a professional opinion on that subject without taking all these points into consideration, and making a careful review of the final arrangement of gradients on the entire sections of the routes under comparison.

Where a Summit is to be overcome, the admitted maxim should not be lost sight of, viz. "Never descend for the purpose of ascending". The existence of intermediate Summits creates ascending and descending grades, and, in proportion to the number and height of Summits, the total rise and fall are increased, and with it, the expense of working the road.

For the purpose of comparing the distribution of grades on the Western Coaticooke, with those on the Stanstead route, I give a Statement showing the total rise and fall on each:—

Total rise and fall on the Western Coaticooke route, from the point of divergence, near Lennoxville to Island Pond ... 1107 feet.

Total rise and fall on the Stanstead route, from the point of divergence to the Hatley Gulf, a point at which Mr. Sill's survey commences, according to Mr. Vining's survey ... 506 do.
 Total rise and fall on the portion of the route as surveyed by Mr. Sill, from Hatley Gulf to the Province Line ... 480 do.
 Add to this the rise from the Province Line to Island Pond, assuming, as stated by Mr. Gilbert, that there will be no falling grade, ... 158 do.
 The aggregate rise and fall on the Stanstead route, will be equal to 1144 do.

From this statement, it will be observed that, though the Summit on the Stanstead route, is 191 feet less than that on the Western Coaticooke, yet in consequence of the unfavorable ground for an economical distribution of grades, the total ascending grade exceeds that of the Western Coaticooke by 37 feet.

According to comparison made as to the lengths of ascending and descending gradients on each route, the results arrived at are as follows:—

The total length of ascending and descending grades on the Western Coaticooke route, is ... 28 miles 2860 feet.
 On the Stanstead route, the total length of ascending and descending grades, is ... 46 miles 1620 feet.

Showing clearly that on the Stanstead route the extent of level grades is much less, in proportion to the distance, than on the Western Coaticooke.

I must repeat however that some alterations might arise in the foregoing calculations owing to the imperfect data afforded by the Stanstead deputation, but no material improvement could, in my opinion, be made except by a very objectionable increase in the distance.

From a careful examination of the whole subject, I have no hesitation in summing up the matter in the following manner:—

1st.—That the route proposed by the Stanstead Deputation cannot be constructed without considerably increasing the distance from the point of divergence to Island Pond.

2nd.—That the increased length of 45 feet grades added to the difficulty which exists in securing their economical distribution will increase the expense of working the road considerably, and

3rd.—That the original cost of constructing the proposed route will not, in my opinion be less per mile than that of the route already located.

I have the honor to be,

Sir,

Your obedient servant,

C. S. GZOWSKI,

Chief Engineer.

To A. C. WEBSTER, Esq., Secretary.

**COPY OF A LETTER RECEIVED ON THE 30TH MARCH, 1852, FROM
THE PRESIDENT OF THE ATLANTIC AND ST. LAWRENCE
RAILROAD COMPANY.**

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{ Office of the Atlantic and St. Lawrence Railroad Company,  
Portland, 24th March, 1852.

*To the Directors of the St. Lawrence and Atlantic Railroad Company :*

GENTLEMEN,—A Committee of our Board intended to have gone to Montreal this week, but will now defer their visit till Mr. Galt arrives here.

We have heard, with much surprise, that a Committee of your Board, have entered into agreements with the people of Stanstead, to change your location from the Coaticooke to the Stanstead and Derby route, under certain conditions, and with that view, have postponed your lettings. Such are the rumours that have reached us, but we do not give credit to them, as such agreements would be in violation of the mutual agreements between the two Boards, and as the question of route and point of junction has been definitely settled and agreed upon by Commissioners of the two Corporations, and the doings of the joint commission have been ratified and confirmed by votes of the two Boards, thus determining the route and point of junction in the mode agreed upon in the fundamental articles of agreement between the two Companies.

By the terms of these articles of agreement, upon the faith of which, the joint enterprise was undertaken, the Coaticooke was fixed as the Western limit of the routes to be selected and agreed upon by the Commissioners.

A more Western line would be deemed an utter abandonment of the whole enterprise; and any agreements with other parties to determine the common route and point of junction, would be in violation of the compact between our two Companies, and we cannot believe that any such stipulations have been entered into.

A change of location would defer the completion of the road a year or more, involving a loss of interest to the two Companies, of more than half a million of dollars.

The line by Stanstead has been surveyed by competent Engineers, and found highly objectionable on account of grades and expense, in addition to the increased distance. We can conceive no possible inducements for your Company to adopt that route, were the question of routes still open, but insuperable objections against that line present themselves to us.

Our policy heretofore has been to get the shortest possible line, with feasible grades, and that policy should not be departed from.

With respect,

Your obedient servant,

JOSIAH S. LITTLE,

President Atlantic and St. Lawrence Railroad Company.

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